NOTES

PROFESSOR FETTER ON CAPITAL AND INCOME

In the March number of this *Journal* appears an article by Professor Fetter commenting, favorably in the main, unfavorably in parts, upon my book, *The Nature of Capital and Income.* I agree with Professor Fetter that the value of discussion consists chiefly in adverse, rather than favorable, criticism. Therefore, while I much appreciate Professor Fetter's words of praise and fully recognize that we are for the most part in accord, I shall direct chief attention to the few issues remaining between us.

Professor Fetter is quite correct in his observation that my own views have developed considerably since 1896, when my first article on capital was written. It would not be worth the reader's while for me to trace the steps in this development. Should I attempt to do so, the present article would become too purely a matter of personal history. Professor Fetter, however, devotes much space to reconstructing, after the methods of the comparative anatomist, the elements of what he believes to be my doctrinal evolution. He has exhumed the dry bones of my early writings and put them together—ingeniously but wrongly. One important bone he overlooked entirely.

At the time of my first article,[1] *income,* so far as it then seemed to me a useful concept at all, was conceived as a flow of wealth of any kind. In the third article, a year later,[2] I expressly relinquished this view and wrote:

> I retract, however, my criticism of Mr. Cannan's use of the word "income," to which he replied in the June number of this *Journal* (pp. 283, 284). In the present article I have employed the term in his sense, and restricted myself to "flow" as the more general correlate of capital.

This change of view was also scrupulously recorded in my

[1] "What Is Capital?" *Economic Journal,* December, 1896.

[2] "The Rôle of Capital in Economic Theory," *Economic Journal,* December, 1897.

book. Referring to Kleinwächter's skepticism as to the possibility of any working theory of income, I said:

The present writer at one time expressed these doubts. . . . . By aid of the criticisms of Cannan and Edgeworth, the conclusions here stated were reached. These were first outlined in "Senses of Capital" (*Economic Journal,* June, 1897) and in "The Rôle of Capital in Economic Theory" (*Economic Journal,* December, 1897).

Having evidently overlooked these two expressions, Professor Fetter writes:[3]

Here [i. e., in *The Nature of Capital and Income,* pp. 52, etc.] *without comment or footnote,* is introduced into the definitions of capital and income which he had presented ten years before a radically new element, and one denoting the abandonment of the former thought.[4]

Again:

In the book one may search in vain for the idea that wealth and income consist of goods of the same kind. It has been *without comment* abandoned.[5]

From this passage it is clear that Professor Fetter has continued until recently to ascribe to me a concept of income repudiated ten years ago. The same error pervades an article of his in "Recent Discussion of the Capital Concept," *Quarterly Journal of Economics,* 1900, and seemed then to be due to his having failed to read with sufficient care my two later articles above mentioned; for, while some slight reference is made to them, the point in question evidently escaped his notice.

The date at which a new view dawns upon a person is usually of little concern to anyone save himself, and it did not occur to me in 1900 that a reply to Professor Fetter was called for.[6] The result of my forbearance, however, has been that Professer Fetter, and possibly others who have read his criticisms, attribute my change of view to the influence of authors who wrote several years after that change of view occurred. Very naturally,

[3] The italics are mine.

[4] "The Nature of Capital and Income," *Journal of Political Economy,* March, 1907, p. 131.

[5] *Ibid.,* p. 132.

[6] Four years later, in an article written for a different purpose ("Precedents for Defining Capital," *Quarterly Journal of Economics,* May, 1904), I mentioned briefly Professor Fetter's misunderstanding of my position.

Professor Fetter is at a loss to understand why I made no reference of acknowledgment to these recent writers.

Before leaving this subject, I would add that the change in my concept of income did not, as Professor Fetter erroneously believes,[7] carry with it any change in my concept of capital.

Professor Fetter is also mistaken in believing that the concept of capital-goods, much emphasized in 1896, has now been shelved by me as useless. This he concludes from the fact that in *The Nature of Capital and Income* the important concept is capital-*value,* not capital-goods. He forgets, however, (1) that the *goods* concept is itself necessary to the formulation of the *value* concept, and (2) that my book does not attempt to cover the entire subject of capital. There are, in fact, four different roads leading from the capital concept, only one of which was followed in the book, the reason being that my book was written principally as a step toward the *theory of interest,* which forms the subject of another book now in press.

Another misunderstanding of Professor Fetter's is found in the following passage:[8]

> The belief is implied that this sum of money rentals and enjoyable services is a homogeneous income because it consists of services to the owner. . . . . This summation of heterogeneous elements . . . . is not a satisfactory solution of the problem.

Some chance expression of mine must have misled Professor Fetter, for I never intended to say that income services were homogeneous in the sense that they could be added together. On the contrary, this was expressly denied on page 121, where I emphasized the fact that miscellaneous services cannot be added together until each is multiplied by its price and all are thus reduced to a common denomination. It is to this sum of value that income-accounts refer.

The preceding criticisms relate to unessential points. More essential is Professor Fetter's general criticism of my theory of income. He seems to forget that, while enjoyable services (psy-

[7] "The Nature of Capital and Income," *Journal of Political Economy,* March, 1907, p. 136.

[8] *Ibid.,* p. 137.

chic income) and objective services are themselves incommensurable, their values are not. Moreover, when the summation is completely carried out, the values of the physical elements cancel *among themselves* and leave as the net result only the value of the psychical elements. It is precisely because of this cancellation, corresponding closely to the double-entry bookkeeping familiar to all accountants, that the harmony between psychic income and the bookkeeper's money-income works itself out automatically and not as an empirical make-shift. The relation is so simple and automatic that all of the various applications of the term "income" are found to come into view, or disappear from view, according to the number of elements of capital which are under consideration. Thus, the income of any one particular department of a great department store may be traced by itself, but every item of it immediately vanishes if the accounts of the entire department store are considered. This disappearance is not due to any makeshift in the accounting, but takes place necessarily and automatically. All the elements of income and outgo of the individual department still influence the sum-total of the department store, but every credit or debit of that department in its dealings with another department is now offset by a debit or credit of this other department. All the credits or debits among the departments of the store thus take care of themselves, canceling in pairs, or "couples," and leaving only the outer fringe of services and disservices of the department store as a whole. In like manner, if the department store is itself considered as one department of a greater department store—the entire world of business—the income and outgo of the store in their turn disappear. Thus the chain of plus and minus elements may be extended or curtailed at will. If restricted to commercial operations, it faithfully reproduces commercial bookkeeping; if extended to domestic economy, it presents model bookkeeping for the home. With each extension of this chain, all previous debits and credits cancel and leave only the last link exposed, which will be a credit—not a debit—and constitutes the final net sum of the whole series. When this process is extended to its uttermost limit, psychic income emerges as the final net or uncanceled

term; commercial accounts will have finally wiped themselves off the slate entirely.

In such a system all the elements of income are organically related and not accidentally assembled. Psychic income emerges at the end, not as opposed to or discordant with the items recorded on merchants' ledgers, but as the ultimate elements up to which those ledgers lead. The aim of my book was to show that the business man's concept of income and the economist's concept of income thus dovetail into each other when the proper method of their cancellation is understood. It is not possible here, even were it advisable, to repeat the explanations of the theory underlying these operations.

Professor Fetter objects that at one stage in this process, income appears to be more closely related to the expenditure of money than to its receipt and, as such, seems out of keeping with the ordinary idea of income. This apparent incongruity, however, is nothing more than the commonly accepted antithesis between "nominal wages" and "real wages."

The seeming contradiction between money income and enjoyable income is readily resolved if we consider debits and credits. When money is spent, the expenditure itself is, it is true, outgo to be debited to the commodities bought with it. But these commodities afterward render a return in satisfactions. These satisfactions are certainly not expenditures, but receipts. Whether money-spending is associated with outgo or income is entirely dependent on whether we fix attention on the loss of the money or the gain of the goods and services for which the money is spent. An alternating series of debits and credits properly entered on the ledger will take care, automatically and unerringly, of the whole process. But, if one is not careful to master the system, it is easy to mistake debits for credits, just as a person innocent of practical accounting is prone to think that "capital" belongs among assets, instead of among liabilities.

Professor Fetter, like all masters in science, has evident difficulty in shifting his point of view to that of another. It would seem that he has not grasped the details of the automatic accounting which he criticizes. Being himself so sure-footed in economic

theory, he is in no need of a guide to direct each separate step. He *sees* the whole without the necessity of piecing it together by parts, just as a skilful housekeeper has a complete picture of her income and expenditures, although she has never kept books in any logical way. A bookkeeper would find her methods unsystematic, but her results correct; while she would find his method of itemizing too tedious and routine-like to suit her purposes. Marshall and Fetter are able to escape the ordinary pitfalls of double counting, without relying on any automatic system of bookkeeping to provide against them. Nevertheless, a logical system of accounting is useful, and quite as much so in economics as in business. It saves serious errors for most persons, and saves labor and time for all. By means of a correct system of accounts a bookkeeper is able to keep the ledger of a firm without requiring any complete knowledge of its business. The items with which economic science deals can likewise be so systematized. If this be done, even the most plodding follower of routine can now avoid errors which so great a writer as Mill did not escape.

It would seem that the most vital point of difference between Professor Fetter and myself relates to my contention that an increase of capital value is not income. I am not quite sure whether our disagreement here is more than a matter of words, and it may well be that my terminology is at fault. I used the term "earnings" in place of what is often called "income," and the term "income" in the sense of the value of services rendered by capital. Under this terminology increase of capital forms a part of earnings but not of income. There is little objection to changing this terminology, if we are willing to give up saying that capital value is the capitalized value of expected income. We could *then* maintain that increase of capital value is income.

But if "income" includes only those elements on the anticipaton of which the value of capital depends, then the increase in the value of capital is most emphatically not income. An example will make this clear. Let us suppose that a man possesses a particular article of wealth or property yielding \$1,000 a year for the first fourteen years, and \$2,000 a year forever after. The "income" in this case consists in the receipt of the sums men-

tioned—fourteen consecutive items of $1,000 each, and thereafter $2,000 a year forever. It is certainly true that the value of his wealth or property, that is the capital value of the $1,000 and $2,000 sums is the discounted value of these items and *these items only*. But according to Professor Fetter, the income, while including these $1,000 and $2,000 sums, includes also the *increase in value* of the annuity.

The capital value of the supposed annuity, if interest is 5 per cent., is about $30,000 at the beginning and $40,000 at the end of fourteen years. There is thus an increase in this capital value of $10,000 in fourteen years, of which $500 occurs in the first year.

Professor Fetter seems to believe that the increase of $10,000 during ten years, as well as each part of it, such as the $500 increment during the first year is discounted in advance like other items of income, in order to form the capital value, $30,000 at the beginning. Waiving the question of names, I deny that this increase of value is discounted like other items of income, That the increase of capital value cannot play the same rôle as the actual payments of which the supposed annuity consists may be shown in various ways.

First, let us put ourselves in the point of view of Professor Fetter and of the many writers who believe that increments of capital are discounted as other items of income are discounted. That they are so discounted certainly appears to be true when short intervals of time are considered. For instance, by confining ourselves to a single year, we may regard the $30,000 at the beginning as the discounted value of (1) the $1,000 to be received at the end of the year, and (2) the capital value of the annuity, $30,500, at the end of the year. It is certainly true that both of these items are discounted to form the $30,000 at the beginning. It is even true that the second item, $30,500, may be broken up into two items, one of which is equal to the original capital value, $30,000, and the other of which, $500, is the increment of capital value during the year. It therefore seems natural to class this $500 as "income" and join it onto the $1,000 of income actually received, instead of associating it with

capital. The annuitant could in fact sell his annuity for $30,500 at the end of the year, and then, reinvesting $30,000, its original value, realize $500 in actual cash. Why then is not this $500 true income? It appears to be both discounted and realized precisely as any of the $1,000 and $2,000 payments of the annuity. As a matter of fact however it is neither. We shall first point out that to "realize" the $500 in the manner supposed, will, by a transparent sleight of hand materially alter the annuity considered. It is true that, if the annuitant should actually do as we have supposed—sell his annuity at the end of the first year and reinvest *only the $30,000*—his income for the year would be, not $1,000, but $1,500, of which $500 was realized on the operation. But he would then no longer have the supposed annuity of $1,000 a year followed by $2,000. Instead he would have a slightly smaller annuity. For by reinvesting only $30,000 out of $30,500 he must certainly suffer a reduction in subsequent income as compared with the income which he would have received had he reinvested the whole $30,500; or, still more simply, had he retained his original annuity. For instance, he may with his $30,000 reinvested obtain $983.50 for the next thirteen years, and $1,967 thereafter, instead of the $1,000 and $2,000 respectively to which his original annuity entitled him. In other words, by supposing him to sell for $30,500 and reinvest only $30,000 we have changed our hypothesis. We have added $500 to the income of the first year, but only by subtractng from subsequent income $16.50 each year for thirteen years and $33 thereafter. These deductions are in fact the exact actuarial equivalent for the $500 taken at the end of the first year. If the annuitant had reinvested *all* of his $30,500 or had let his annuity alone, he would have continued to receive his full $1,000 and $2,000 payments, but he would *not* have received the $500 at the end of the first year. He cannot do both—eat his cake and have it too. Either he has $500 in capital or $500 in income, but if it is capital he cannot count it also as income.

It is clear, then, that if our annuity is to remain in its original form ($1,000 for 14 years and $2,000 thereafter) we have

no right to assume the sale and reinvestment at the end of the first year unless the whole $30,500 be reinvested. In the latter case the $500 will no longer be realized income; for if we regard its receipt as income by virtue of the sale, we must regard its expenditure as an offsetting outgo by virtue of the reinvestment.

We return, therefore, to the original annuity, untampered with by sale and reinvestment. Professor Fetter may still ask, Is it not true that the $500 accumulated during the first year is discounted in the same way as ordinary income? To this we answer emphatically, *No*. It is true that the $500 may be discounted, but not in the same way as true income. In the first place, the $500, like all of the $30,500 of which it forms a part, if discounted, is discounted only *as the representative of later* income. This $30,500 is itself the discounted value of the income subsequent to the first year, namely, thirteen successive items of $1,000 each followed by a perpetual annuity of $2,000. By confining our view to the first year only, and thereby shutting out of sight all income of subsequent years, we are naturally obliged in some way to supply its place. This we do by means of the $30,500, the capitalized value of all subsequent income. We are, therefore, merely *rediscounting* this subsequent income. Instead of discounting it directly we discount it in two stages, the result of the first stage being $30,500 located at the end of the first year, and the result of the second being $30,000 located at the beginning of that year. The $500 in dispute, like all of the $30,500 of which it forms a part, is therefore not discounted *in addition to* the long series of $1,000 and $2,000 items of true *income but as a substitute for* some of them.

This may be seen more clearly by extending the time to a longer period than one year. Thus, if we take a two-year segment of time, the payments actually received will be $1,000 in each of two years, and at the end of these two years there will be a capital value of $31,025. We then have the equation: $30,000 at the beginning is equal to (1) the discounted value of $1,000 a year for two years plus (2) the discounted value of $31,025 at the end, which in turn is the discounted value of all subsequent income. Again, if a period of twenty years be considered,

$30,000 at the beginning is equal to (1) the discounted value of fourteen annual payments of $1,000 each, and of six annual payments of $2,000 each plus (2) the discounted value of $40,000 as the capitalization or representative of all income subsequent to twenty years. In general, the capital value at the beginning of any period is the discounted value of the income accruing during that period plus the discounted value of the capital at the end; and this last capital is the discounted value of all subsequent income.

From these examples it should be clear that the capital value at the end of any period including the $500 is not discounted as ordinary income is discounted but only as a representative of some of that income. In this respect the $500 differs absolutely from the items of $1,000 and $2,000 which constitute true income, for none of these items represent the discounted value of other items, subsequent in the series. Each of them is discounted *in addition* to the others and not *instead of* them. Increments of capital are capitalized income not income itself.

Another radical distinction between the discounting of true income and the discounting of an increment of capital is found in respect to the location of those items in time. To find the present value of an item of income we discount it from the point of time at which it accrues. But this is not true of increments of capital. For instance, to revert to the example of the annuity of $1,000 a year for fourteen years followed by $2,000 thereafter, let us again consider the period of the first twenty years. During this period the capital value has increased from $30,000 to $40,000, the total increase being $10,000. This $10,000, however, accrued gradually; $500 of it accrued in the first year, $525 in the second, and so on increasingly until in the fourteenth year the increment was $1,000. During the next six years of the twenty years considered, there is no further accretion. Now, if these increments (aggregating $10,000) were discounted as ordinary income is discounted they would be discounted from the times at which they accrue. $500 would be discounted for the first year, $525 for the second, etc. But the fact is that this entire increase of $10,000 in capital value must

be lumped together and discounted from the end of the twentieth year—the same point of time, in fact, as the other $30,000 of capital value. Otherwise our calculated value of the capital at the beginning will not be $30,000 as it should be but about $33,000. If instead of twenty years our period is nineteen years, the capital value at the end will be $40,000 and the increment $10,000 just as before, but this $10,000 must now be discounted from the nineteenth year. Similarly, if eighteen years be taken the increment of $10,000 must be discounted for eighteen years. In no case can we get the correct value, $30,000, by discounting the increase of capital value from the times at which they actually accrue. Even when only one year is taken such a mode of reckoning would lead to slight error (about $12).

It is clear, therefore, that the increase of capital value is discounted very differently from true income. It is discounted only vicariously, as a substitute for the true income beyond any given point of time. Its location for discount purposes shifts according to the point of time at which we close our books instead of being distributed through the periods of time when it accrues. Increase of capital plays only the rôle of capital and not of income.

Another important difference between true income and the increment of capital lies in the fact that, whereas the items of true income can be varied at will, each independently of the others, the increment of capital cannot be known until all of the true income is known. If, for instance, we vary the preceding example by supposing the true income after the fourteenth year to be, not $2,000, but $1,500, and that during the first fourteen years to be $1,000 as before, we shall find that the increment of capital in the first year will not remain at $500, but necessarily changes to $250, for the capital value of the property is by actual computation $25,000 at the beginning and $25,250 one year later. In short, increments of capital value have no independent existence, but like all capital value merely hang upon the value of expected income.

We note finally that increments of capital value differ from true income in that they are affected by a change of the rate of

interest used in discounting. If the rate of interest is lower than five per cent., the annuitant just considered will find that his increment of capital value in the first year is less than \$500; if the rate is higher than 5 per cent. his increment will be greater than \$500, but the change in the rate will not alter his true income, which is still \$1,000 for fourteen years and \$2,000 thereafter. The same principles apply very obviously to any other numerical case, whether the annuity or income is perpetual or terminable, whether it increases or decreases, whether it accrues evenly or irregularly.

No sound theory of capital value can gain acceptance until we give up thinking of capital value as an independent entity existing apart from anticipated income. Capital value is merely a present expression for future income. We must always begin our capital reckoning with income, and with that item of income most remotely future. We then proceed backward in time to the present, generating present capital out of future income. The ordinary man, however, thinks in precisely the opposite order, proceeding from capital to income and regarding an increment of capital as growing out of the capital instead of being merely part of the capital value of subsequent income. Once we see clearly that the value of any capital, such as a house, a factory, a railway, is merely the capitalization of expected income, we cannot avoid seeing that both this capitalized value and its fluctuations have no independent existence apart from the income capitalized. Nothing but confusion can result by thinking of an increase in the capitalized value of income as itself income. It can be turned into income, but only by cutting out an equivalent from the future income for which it stood. If it is allowed to remain as a part of capital value it will play the rôle of capital value and cannot legitimately masquerade as income also. It is not discounted as income *in addition to* all of the true income, although it may be discounted *instead of* a part of that income.

If it be asked: Is there no justification for the very common usage by which increase of capital is regarded as income? the reply is: Yes, if only we also count it as outgo! All such income is turned back into capital. Increase of capital regarded

as acquired *by* that capital is income, but regarded as paid *to* that capital it is outgo. As we saw, the annuitant may count his annual increase of capital as income, if he remembers that, being returned to the capital from which it came, it is also outgo.

The correctness of this accounting is evident if we think of a savings-bank depositor who allows his deposit to accumulate. We may imagine such a depositor at each successive year visiting the bank, receiving his increase of capital during the preceding year (interest), and then immediately redepositing this sum. No objection can be offered to calling the receipt true income from his savings, but consistency requires that its redeposit should be called outgo.

Professor Fetter overlooks these coupled and self-canceling items of income in several parts of his criticism. The oversight is responsible for his ascribing to me an inconsistency on this very point. He believes that I myself sometimes call increase of capital, income; but he fails to observe that in all such cases there enters a corresponding negative item—a debit as well as a credit. His oversight may be due to the fact that the credit often pertains to one article of capital and the debit to another. Thus, if the savings-bank depositor, instead of redepositing his annual interest in the same bank, deposits it in another bank, the interest payment is to be regarded as income from his account in the first bank without any offsetting outgo; but at the same time it is outgo with reference to his account in the second bank, and without any offsetting income. Most business operations correspond to such shifting of bank deposits from one institution to another. They represent an increase of capital, but by two equal and opposite items in the income account. Increase of capital value merely *passes through* the income account; it does not leave any net addition there.

Professor Fetter regrets that my book fails to treat the nature of capital and income as a part of the theory of distribution. A correct statement of the nature of capital and income undoubtedly underlies a correct theory of distribution, but I purposely sought to avoid entangling the fundamental concepts of capital and income with any of their numerous applications.

These applications must form the subject of separate investigations.

It is exceedingly difficult to reply adequately to a critic on issues as intricate as those involved in Professor Fetter's article, for both the criticism and the reply, to be thoroughly intelligible, require a first-hand knowledge of the book criticized. For this reason I cannot help feeling that my best reply to Professor Fetter is contained in the book itself. The present article merely seeks to picture in outline the oversights which Professor Fetter has made. When misunderstandngs are explained, it will be found, I think, that our agreement is more nearly complete than he has realized.

IRVING FISHER

YALE UNIVERSITY